

## REMARKS

Claims 15-26 are pending in the present application and at issue. Claims 15-26 have been amended to address the objections to the claims and the rejection under 35 U.S.C. 112, second rejection. The scope of the claims has not changed.

Applicants enclose a paper copy and a computer readable form of a substitute Sequence Listing to correct errors in SEQ ID NO: 6. Applicants noted that SEQ ID NO: 6 in the prior Sequence Listing was not identical to the corresponding sequence provided in Figure 1. The content of the paper copy and of the computer readable form is the same. This submission contains no new matter.

It is respectfully submitted that the present amendment presents no new issues or new matter and places this case in condition for allowance. Reconsideration of the application in view of the above amendments and the following remarks is requested.

### **I. The Objection to Claims 17-26**

The Office objected to claims 17-26 due to informalities. With respect to claims 17-20, it was suggested that the term "an amino acid sequence" be replaced with "the amino acid sequence", and as to claims 21-26, it was suggested that the term "a phytase of claim #" be replaced with "the phytase of claim #".

Claims 17-26 have been amended as suggested by the Examiner. Therefore, the objections have been overcome.

### **II. The Rejection of Claims 15 and 16 under 35 U.S.C. 112**

Claims 15 and 16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite. Specifically, the Examiner requested that the parameters used to calculate % identity be inserted in these claims.

Claims 15 and 16 have been amended as suggested by the Examiner. Therefore, this rejection has been overcome.

### **III. The Rejection of Claims 18 and 24 under the Doctrine of Obviousness-Type Double Patenting**

Claims 18 and 24 are rejected under the doctrine of obviousness-type double patenting as being unpatentable over claims 4-5, 37-38 and 40-42 of U.S. application no. 09/343,126. Specifically, the Office states that claims 4-5, 37-38 and 40-42 of the 126 application are drawn to

composition comprising a phytase labeled consensus phytase 10 thermo W50T-K91A and that SEQ ID NO: 167 of the 126 application is 94.9% sequence identical to SEQ ID NO: 26 of the instant application. This rejection is respectfully traversed.

U.S. application no. 09/343,126 is an application owned by F. Hoffmann-La Roche AG and has an effective filing date of June 29, 1998. The Hoffmann-La Roche application claims stabilized enzyme formulations comprising a phytase and a stabilizing agent selected from the group consisting of C<sub>5</sub> sugars, polyethylene glycol, disodium salts of malonic, succinic and glutaric acid, carboxymethylcellulose, and sodium alginate. Therefore, the claims of application no. 09/343,126 do not claim the phytases of the present invention and therefore do not conflict with the claims of the instant application.

For the foregoing reasons, Applicants submit that the claims overcome this rejection under the doctrine of obviousness-type double patenting. Applicants respectfully request reconsideration and withdrawal of the rejection.

Applicants respectfully request that if this rejection is maintained, that the Office provide a copy of the 126 application, including the Sequence Listing, as well as a copy of the pending claims.

#### **IV. Application Nos. 09/273,871 and 09/684,855**

The Office stated that application nos. 09/273,871 and 09/684,855 are not available and therefore no determination has been made as to whether or not a double patenting should be applied. Applicants submit that no double patenting rejection should be applied.

##### Application no. 09/273,871

Application no. 09/273,871, another application owned by Novozymes A/S, has been allowed with the following independent claim:

A modified phytase comprising a mutation in an amino acid sequence of a phytase, wherein the modified phytase has phytase activity and the mutation is at one or more positions selected from the group consisting of:

43, 44, 47, 51, 58, 62, 80, 83, 88, 90, 102, 115, 143, 148, 153, 154, 186, 187a, 195, 198, 201e, 204, 205, 211, 215, 220, 242, 244, 251e, 260, 264, 265, 267, 270, 273, 278, 302, 337, 339, 352, 365, 373, 383k, 404 and 417,

wherein each position corresponds to the position of the amino acid sequence of the mature *P. lycii* phytase (SEQ ID NO: 7).

However, the claims of application no. 09/273,871 do not claim the phytases of the present invention and therefore do not conflict with the claims of the instant application.

Application no. 09/684,855

Application no. 09/684,855 is an application owned by F. Hoffmann-La Roche AG and has an effective filing date of October 11, 1999, i.e., almost nine months later than Applicants' effective filing date of January 22, 1999. The Hoffmann-La Roche application claims a continuous fermentation process. The claims of application no. 09/684,855 do not claim the phytases of the present invention and therefore do not conflict with the claims of the instant application.

**V. Conclusion**

In view of the above, it is respectfully submitted that all claims are in condition for allowance. Early action to that end is respectfully requested. The Examiner is hereby invited to contact the undersigned by telephone if there are any questions concerning this amendment or application.

Respectfully submitted,



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Date: January 13, 2003



Attorney Docket No.: 5808.200-US

PATENT

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Application of: Martin Lehmann

Confirmation No: 4209

Serial No.: 09/488,265

Group Art Unit: 1652

Filed: January 20, 2000

Examiner: D. Ramirez

For: Improved Phytases

**VERSION WITH MARKINGS TO SHOW CHANGES MADE**

Sir:

Below is a marked-up version of the amendments made in the accompanying amendment.

**IN THE CLAIMS:**

Claims 15-26 have been amended as follows:

15. A phytase comprising an amino acid sequence which is at least 93.80% identical to the sequence of amino acid residues 1-467 of SEQ ID NO: 26, wherein the % identity is determined by GAP provided in the GCG program package using a length weight of 0 and a gap weight of 3.

16. A phytase that is encoded by a DNA sequence that is at least 95.88% identical to nucleotides 12-1412 of the DNA sequence of SEQ ID NO: 25, wherein the % identity is determined by GAP provided in the GCG program package using a gap creation penalty of 50 and a gap extension penalty of 3.

17. A phytase that comprises:

(a) the ~~an~~-amino acid sequence of SEQ ID NO: 26 or amino acid residues 1-441 of SEQ ID NO: 26; or

(b) the ~~an~~-amino acid sequence encoded by nucleotides 12-1412 or 90-1412 of SEQ ID NO: 25.

18. A phytase comprising:

(a) the ~~an~~-amino acid sequence of SEQ ID NO: 31,

(b) the ~~an~~-amino acid sequence of SEQ ID NO: 31 in which the amino acid residue at position 24 is glutamine,

(c) the ~~an~~-amino acid sequence of SEQ ID NO: 31 in which the amino acid residue at position 65 is lysine,

(d) the ~~an~~-amino acid sequence of SEQ ID NO: 31 in which the amino acid residue at position 24 is glutamine and the amino acid residue at position 65 is lysine,

(e) the ~~an~~-amino acid sequence of residues 1-441 of any of (a) – (d), or

(f) the ~~an~~-amino acid sequence encoded by nucleotides 1-1401 or 79-1401 of SEQ ID NO: 30.

19. A phytase comprising:

(a) the ~~an~~-amino acid sequence of SEQ ID NO: 29,

(b) the ~~an~~-amino acid sequence of SEQ ID NO: 29 in which the amino acid residue at position 24 is glutamine,

(c) the ~~an~~-amino acid sequence of SEQ ID NO: 29 in which the amino acid residue at position 65 is lysine,

(d) the ~~an~~-amino acid sequence of SEQ ID NO: 29 in which the amino acid residue at position 24 is glutamine and the amino acid residue at position 65 is lysine,

(e) the ~~an~~-amino acid sequence of residues 1-441 of any of (a) – (d), or

(f) the ~~an~~-amino acid sequence encoded by nucleotides 1-1401 or 79-1401 of SEQ ID NO: 28.

20. A phytase comprising ~~an~~-the amino acid sequence of SEQ ID NO: 27.

21. A food or feed composition comprising a-the phytase of claim 15.

22. A food or feed composition comprising a-the phytase of claim 16.

23. A food or feed composition comprising a-the phytase of claim 17.

24. A food or feed composition comprising a-the phytase of claim 18.

25. A food or feed composition comprising a-the phytase of claim 19.

26. A food or feed composition comprising a-the phytase of claim 20.